5

10

E0917 / 95-319

APPARATUS AND METHOD FOR IDENTIFYING DATA PACKET AT WIRE RATE ON A NETWORK SWITCH PORT

ABSTRACT OF THE DISCLOSURE

A network switch, configured for performing layer 2 and layer 3 switching in an Ethernet (IEEE 802.3) network without blocking of incoming data packets, includes a network switch port having a filter (i.e., a packet classifier module) configured for evaluating an incoming data packet on an instantaneous basis, immediately upon receipt at the network switch port. The filter performs simultaneous comparisons between the incoming data stream of the data packet and multiple templates configured for identifying respective data protocols. Each template is composed of a plurality of min terms, wherein each min term specifies a prescribed comparison operation within a selected data byte of the incoming data packet. The templates may be programmed by a user and stored in an internal min term memory. Moreover, the multiple simultaneous comparisons enable the network switch to perform layer 3 switching for 100 Mbps and gigabit networks without blocking in the network switch.